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INTRODUCTION.

This REVIEW treats generally the meteorological conditions of the United States and Canada for April, 1888, and is based upon the reports of regular and voluntary observers of both countries. Descriptions of the storms that occurred over the north Atlantic Ocean are also given, and their approximate paths shown on chart i, on which also appears the distribution of field-ice and the limits of fog-belts west of the fortieth meridian.

The marked departures from the normal atmospheric pressure for this month is worthy of mention, the pressure being decidedly above the normal in all parts of the country, except in southern California.

The rainfall was largely deficient on the Pacific coast, in the central valleys, south Atlantic and Gulf states; it was much above the average in the Rio Grande valley and in the adjacent portions of the southern slope and central Texas.

The month was warmer than the average in the Southern States, Rocky Mountain districts, and on the Pacific coast, the mean temperatures ranging from 2° above the normal in the Gulf States to more than 6° above in the Rocky Mountain regions; it was slightly colder than the average from the upper Mississippi valley eastward to the New England coast.

In this REVIEW appears the first summary for the season of 1888 of observations of temperatures and rainfall in the cotton

regions, a comparison of which with means of April of former years shows, in general, the same features as exhibited by reports from the regular Signal Service stations, viz., high mean temperatures, and, with the exception of the district of Galveston, marked deficiencies of rainfall.

In the preparation of this REVIEW the following data, received up to May 20, 1888, have been used, viz., the regular tri-daily weather-charts, containing data of simultaneous observations taken at 133 Signal Service stations and 21 Canadian stations, as telegraphed to this office; 181 monthly journals and 179 monthly means from the former and 21 monthly means from the latter: 319 monthly registers from voluntary observers; 60 monthly registers from United States Army post surgeons; marine records; international simultaneous observations; marine reports through the co-operation of the Hydrographic Office, United States Navy, and the "New York Herald Weather Service;" monthly weather reports from the local weather services of Alabama, Arkansas, Colorado, Illinois, Indiana, Kansas, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Nevada, New England, New Jersey, North Carolina, Ohio, Oregon, Pennsylvania, South Carolina, and Tennessee, and the Central Pacific Railway Company; trustworthy newspaper extracts, and special reports.

ATMOSPHERIC PRESSURE (expressed in inches and hundredths).

The distribution of mean pressure for April 1888, determined from the tri-daily telegraphic observations of the Signal Service, is shown by isobarometric lines on chart ii, from which it will be seen that the mean pressure for this month is greatest over a region extending from the Great Lakes southward to the Atlantic and Gulf coasts, the means generally ranging from 30.15 to 30.17. The lowest barometric means occur in the Rocky Mountain districts, where they are below 30.0 at most stations.

The departures from the normal pressure at the various Signal Service stations are given in the table of miscellaneous meteorological data. The pressure is nowhere below the normal and there is, comparatively, but a small area, viz., central and southern California, over which it is not above the normal. As it seldom occurs that the mean pressure of a month exceeds the normal over so much of the United States as is the case this month, this feature, together with the marked excess over the whole territory east of the Rocky Mountains, makes the month, with regard to mean pressure, an exceptional one. Over nearly all of the region east of the Rocky Mountains the departures amount to from .10 to .17 and there is but a limited area, viz., California and portions of Arizona and New Mexico, in which they fall below .05.

Compared with the preceding month a deficiency is shown over the region between the Mississippi River and Rocky

Mountains, the departures being less than .05 except in Montana, Dakota and Minnesota where they range from .05 to .13. East of the Mississippi River, in the northern and central plateau, and thence westward to the Pacific, the mean pressure of April is greater than that for March, the excess amounting to .10 or slightly more on both the north Pacific and New England coasts.

BAROMETRIC RANGES.

The monthly barometric ranges at the various Signal Service stations are also given in the table of miscellaneous meteorological data. The ranges, as usual, conform to the general rule; that is, they increase with the latitude and decrease slightly, though somewhat irregularly, with increasing longitude. In the states bordering on the Atlantic the extreme ranges are: .29 at Key West, Fla. and 1.03 at Albany, N. Y.; between the eighty-second and ninety-second meridians, .37 at New Orleans, La., and 1.08 at Alpena, Mich.; between the Mississippi River and Rocky Mountains, .39 at Galveston, Tex., and 1.42 at Fort Totten, Dak.; plateau regions, .43 at Prescott and Yuma, Ariz., and .97 at Fort Bridger, Wyo.; Pacific coast, .35 at Los Angeles and San Diego, Cal., and .76 at Port Angeles, Wash. The ranges for April, 1888, are about normal in the southern portions of the country, on the Pacific coast, and in the Lake region. In the Missouri Valley they exceed the normal from .20 to .40, while in New England they are from .10 to .20 below the normal.